



## Article

# Temperature affects the size-structure of phytoplankton communities in the ocean

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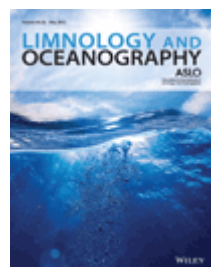
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## Abstract

The strong inverse correlation between resource availability and temperature in the ocean poses a challenge to determine the relative effect of these two variables on the size-structure of natural phytoplankton communities. Marañón et al (2012) compiled a dataset of concurrent temperature and resource level proxies that they claim disentangled the effect of temperature from that of resource supply. They concluded that the hypothesis that temperature per se plays a direct role in controlling phytoplankton size structure should be rejected. But our reanalysis of their data reaches a very different conclusion and suggests that they failed to separate the effects of temperature from the effects of resources. Although we obviously concur with Marañón et al (2012) in the long-known predominance of small phytoplankton cells under oligotrophic conditions, from our point of view this should not deter us from considering temperature as an important explanatory variable at a global scale since we show that, for the vast oligotrophic areas of the world's oceans where chlorophyll concentrations are below  $<1 \mu\text{g L}^{-1}$  temperature explains a high proportion of the variability in the size distribution of phytoplankton communities, a variability that can not be explained on the basis of the resource level proxies advocated by Marañón et al. (2012).

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